

MAR. 9. 2005 2:41PM

CHRISTENSEN OCONNOR

NO. 3630 P. 1/14

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FACSIMILE COVER SHEET

DATE: March 9, 2005

TO: U.S. Patent and Trademark Office
Examiner Dinh Q. Nguyen
Art Unit 3752

FACSIMILE NO: 703.872.9306

RE: U.S. Patent Application No. 10/746,837
HERMETICALLY SEALED GAS PROPELLANT
CARTRIDGE FOR FIRE EXTINGUISHERS

OUR REFERENCE: AJGC121761

YOUR REFERENCE: Confirmation No. 1417

FROM: Laura A. Cruz

(Facsimile No. 206.224.0779)

MESSAGE:

PLEASE SEE ATTACHED OFFICIAL RESPONSE.

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PAGE 1/14 * RCVD AT 3/9/2005 5:37:15 PM [Eastern Standard Time] * SVR:USPTO-EFXXRF-1/4 * DNS:8729306 * CSID: * DURATION (mm-ss):04-08

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**OFFICIAL
MAIL STOP
AMENDMENT**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: P. H. Wierenga et al. Attorney Docket No.: AJGC121761
 Application No.: 10/756,837 Group Art Unit: 3752
 Filed: January 13, 2004 Examiner: D.Q. Nguyen
 Title: HERMETICALLY SEALED GAS PROPELLANT
 CARTRIDGE FOR FIRE EXTINGUISHERS

RESPONSE TRANSMITTAL LETTER

Seattle, Washington 98101

March 9, 2005

TO THE COMMISSIONER FOR PATENTS:

A. Response Transmittal

Transmitted herewith is a response in the above-identified application.

X 1. No additional claim fee is required, as shown below.

	Claims Remaining After Response		Highest Number Previously Paid For		Present Extra		Rate		Additional Fee
Total Claims	34	-	54	=	0	x	50	=	0
Independent Claims	7	-	13	=	0	x	200	=	0
TOTAL									\$0

B. Additional Fee Charges or Credit for Overpayment

The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16, 1.17 and 1.18 which may be required during the entire pendency of the application, or credit any overpayment, to Deposit Account No. 03-1740. This authorization also hereby includes a request

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for any extensions of time of the appropriate length required upon the filing of any reply during the entire prosecution of this application.

Respectfully submitted,

CHRISTENSEN O'CONNOR
JOHNSON KINDNESS^{LLC}



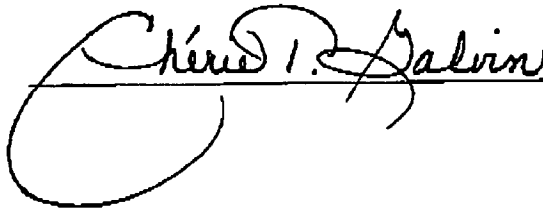
Laura A. Cruz
Registration No. 46,649
Direct Dial No. 206.695.1725

I hereby certify that this correspondence is being transmitted via facsimile to the U.S. Patent and Trademark Office, Group Art Unit 3752, Examiner Dinh Q. Nguyen, at facsimile number 703.872.9306 on March 9, 2005.

Date:

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March 9, 2005



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: P.H. Wierenga et al. Attorney Docket No.: AJGC121761
Application No.: 10/756,837 Group Art Unit: 3752
Filed: January 13, 2004 Examiner: D.Q. Nguyen
Title: HERMETICALLY SEALED GAS PROPELLANT
CARTRIDGE FOR FIRE EXTINGUISHERS

RESPONSE

Seattle, Washington 98101

March 9, 2005

TO THE COMMISSIONER FOR PATENTS:

This paper is filed in response to the Office Action mailed on December 9, 2004. Currently, Claims 1-54 are pending in the application. Of these, Claims 26-39, 41-43, and 49-51 are withdrawn from consideration. Claims 1-18, 21-25, 40, 44-48, and 52-54 have been examined and stand rejected. Claims 19 and 20 are objected to as being dependent on a rejected claim but are otherwise indicated to contain allowable subject matter. Reconsideration of Claims 1-18, 21-25, 40, 44-48, and 52-54 is respectfully requested.

The Rejection of Claim 15 Under 35 U.S.C. § 112, Second Paragraph

Claim 15 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. The Examiner states, "Applicant fails to properly disclose the distinction of the cover and the lid." Applicants respectfully disagree.

Claim 15, recites, in part, "further comprising a cover having an initiator assembly in proximity to the area of the gas generator cartridge lid." A cover having an initiator assembly is

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discussed in connection with FIGURE 1, and particularly, on page 7, lines 19-25, of the present application. That passage recites:

[A] cover 128 is provided at the upper open end 158 of the gas generator breech 150. The cover 128 functions to prevent combustion gases from exiting the gas generator breech 150 through the upper end of the gas generator breech. The cover 128 can likewise be connected to the breech 150 with a threaded, or other non-permanent connection. The cover 128 is also configured to hold an initiator assembly 104 with a squib 105 that ignites the solid propellant contained within the gas generator cartridge 170.

The gas generator cartridge lid is also discussed in the same paragraph. That paragraph recites that "the gas generator cartridge 170 has a lid that may be scored or otherwise has an area of decreased thickness in proximity to the squib 105 to enable the burning and/or rupture of the lid and ignition of the solid propellant 184 within the gas generator cartridge 170." The lid of the gas generator cartridge 170 is shown as reference numeral 180 in FIGURE 3.

Accordingly, applicants submit that there is sufficient description in the specification to apprise one of ordinary skill in the art to understand what is meant by cover and lid, as used in Claim 15. Accordingly, applicants respectfully request the withdrawal of the rejection of Claim 15 under 35 U.S.C. § 112, second paragraph.

The Rejection of Claims 1, 2, 5, 7-9, 13, 16, 17, 23, 40, and 52-54 Under 35 U.S.C. § 102(b)

Claims 1, 2, 5, 7-9, 13, 16, 17, 23, 40, and 52-54 are rejected under 35 U.S.C. § 102(b) as being anticipated by Galbraith et al. (U.S. Patent No. 5,465,795).

Claims 1, 40, 52, and 54 are independent claims, the remainder of the claims being dependent on one of the independent claims.

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Claims 1 and 40 are related to a fire extinguisher recite having a hermetically sealed gas generator cartridge within the breech of the fire extinguisher. Claim 40 further requires the cartridge's exterior to be open to the tank's interior. For a reference to be anticipatory, the reference must exactly describe the claimed invention. Applicants submit that Galbraith et al. does not describe a hermetically sealed gas generator cartridge or a breech.

The Examiner states that Galbraith et al. discloses "a gas generator breech having a hermetically sealed gas generator 12 with a aluminum housing 36 and a propellant comprising a nitrogen containing fuel (column 4, line 33) or a strontium nitrate (column 4, line 54), and a lid or a burst disk 40 with area of localized weakness."

The Examiner fails to properly explain which is the breech, which is the gas generator cartridge, and how the gas generator cartridge is hermetically sealed, as is called for in Claims 1 and 40. Instead, the Examiner refers to both the breech and cartridge as being disclosed in the Galbraith et al. reference by alluding to element number 12. Also, the Examiner fails to explain how the cartridge's exterior is open to the tank interior, as called for in Claim 40.

The Galbraith et al. reference does not describe a hermetically sealed gas generator cartridge. The gas generators of Galbraith et al. appear to have a housing surrounding the propellant, with a triggering mechanism 32 inserted through the top of the housing. The housing 36 also has an opening in the bottom of the housing to let the passage of gases 16 therethrough. Accordingly, because of the holes at the top and bottom of the housing 36, the gas generator cannot be hermetically sealed.

The Galbraith et al. reference does not describe a gas generator breech. On close inspection of the Galbraith et al. reference, element number 12 is a gas generator containing a solid propellant 14. The housing 36 of gas generator 12 cannot be both the breech and part of the cartridge. In direct contrast to the Galbraith et al. reference, the invention of Claims 1 and 40

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includes a gas generator breech, wherein a hermetically sealed gas generator cartridge is provided within the gas generator breech. As discussed more thoroughly in the specification, the breech is provided to be a receptacle for the gas generator cartridge, and is generally a compartment into which the gas generator cartridge may be inserted. After placement of the gas generator cartridge, the breech can be closed with the cover 128. The breech according to the invention is provided with unobstructed passages that lead from the breech interior to the tank interior, and the cartridge is hermetically sealed, so the cartridge container is frangible at a certain pressure. Thus, one advantage of the invention is the elimination of rupture disks between the gas generator cartridge and the interior of the tank. At ignition, the cartridge's container ruptures and gasses are allowed to pass through the breech passages and pressurize the tank interior.

Finally, the Galbraith et al. reference describes isolating the gas generator 12 from the chamber 20. Therefore, the Galbraith et al. reference does not describe or suggest, "the gas generator cartridge exterior is open to the tank interior." At Col. 6, lines 43-46, the Galbraith et al. reference recites, "To prevent contamination of the chamber 20 by the solid propellant 14 prior to ignition, a first rupture diaphragm 40 isolates the vaporizable liquid 18." Thus, this is only further evidence that the gas generator 12 is not hermetically sealed; otherwise, there would be no need to take preventive action against contamination.

Accordingly, applicants submit that the Galbraith et al. reference lacks a breech, lacks having a hermetically sealed gas generator cartridge within the breech, and lacks having the cartridge exterior open to the tank interior.

Claim 52 is related to a fire extinguisher having a "gas generator breech connected to said tank, wherein said breech is configured to allow gas passage from the interior of the breech to the interior of the tank." As discussed above, the Examiner has erroneously referred to element

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number 12 in the Galbraith et al. reference as being both a breech and a hermetically sealed gas generator cartridge. Applicants submit that element number 12 in the Galbraith et al. reference is not a hermetically sealed gas generator cartridge. Furthermore, it has been shown that Galbraith et al suggests closing the passage between the gas generator and tank with a rupture diaphragm to prevent contamination of the chamber with propellant. Accordingly, the Galbraith et al. reference fails to describe or remotely suggest a breech, as called for in Claim 52. The device of Galbraith et al. appears to be a single use extinguisher, whereas the present invention can be re-used by discarding used cartridges and inserting a new cartridge in the breech. Galbraith et al. fails to teach or remotely suggest these advantages.

Claim 54 is related to "a fire extinguisher having both a gas generator breech connected to the tank, and a gas generator cartridge with a container configured to burst at a predetermined pressure, wherein the breech does not have a shim or release poppet." As discussed above, the Galbraith reference does not describe a breech. Furthermore, the container of the gas generator 12, i.e., the housing 36, of Galbraith et al. does not undergo bursting at a predetermined pressure, as is recited in Claim 54, due to the hole at the bottom of the housing 36. Still further, the Galbraith et al. reference describes a rupture diaphragm interposed between the gas generator and the tank.

Accordingly, applicants submit that Claims 1, 2, 5, 7-9, 13, 16, 17, 23, 40, and 52-54 are not anticipated by the Galbraith et al. reference. Therefore, the withdrawal of the rejection of these claims is respectfully requested.

The Rejection of Claims 1, 2, 16, 18, and 52 Under 35 U.S.C. § 102(b)

Claims 1, 2, 16, 18, and 52 are rejected under 35 U.S.C. § 102(b) as being anticipated by Parkinson et al. (U.S. Patent No. 5,992,528). Applicants respectfully disagree.

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The Examiner states, "Parkinson discloses a fire extinguisher comprising a tank 112 for a fire suppressant 158, a gas generator breech 170 having a hermetically sealed gas generator 129 within the tank 112."

For a reference to be anticipatory, the reference must exactly describe the claimed invention.

Claim 1 and Claim 52 are independent claims. Claims 2, 16, and 18 depend from Claim 1.

Claim 1 recites, "a gas generator breech connected to said tank, wherein a hermetically sealed gas generator cartridge is provided within said gas generator breech."

The Examiner states that the hermetically sealed gas generator of Claim 1 is element number 129 in the Parkinson et al. reference. The Parkinson et al. reference describes element number 129 as a combustion chamber. The combustion chamber 129 includes an exterior housing 116. Parkinson et al. further adds:

A first portion 120 of housing 116 extends axially inwardly into pressure bottle 112 and a second portion 122 extends axially outwardly from the pressure bottle. The first portion 120 terminates inside the bottle in an end wall 124 facing the end of bottle 112 opposite housing 116 and having at least one gas generant opening 125. Adjacent end wall 124 and generant opening 125 is a filter retainer element 127 for retaining adjacent gas-producing combustible material 131 housed in a combustion chamber 129 defined by first portion 120 of housing 116.

Please see Col. 4, lines 20-29. Furthermore, please see Col. 5, lines 34-42. That passage states that "gases generated by the combustible material 131 flow through filter 127 and gas generator opening 125 greatly increasing the gas pressure in chamber 156 of bottle 112."

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Accordingly, even assuming that the combustion chamber 129 is a gas generator cartridge, the combustion chamber 129 cannot be hermetically sealed because of porous filter element 127 and opening 125.

Furthermore, if element number 129 is assumed to be the gas generator, element number 129 is not provided within a gas generator breech, as recited in Claim 1.

In contrast to Claim 1, the fire extinguisher of Parkinson et al. reference has inserted a combustion chamber 129, directly within the tank volume. Please note that the combustion chamber 129 is not provided within a gas generator breech as in Claim 1.

With respect to Claim 50, the Examiner states that Parkinson et al. describes a breech as element number 170.

The Parkinson et al. reference describes element number 170 as a combustion ignition assembly. Please see Col. 5, lines 6-8. As such, applicants submit the combustion ignition assembly 170 is not a gas generator breech, as claimed. The Parkinson et al. reference describes:

The combustion ignition assembly 170 includes an actuation plate 172 aligned with projectile 162. The plate 172 is held between disk housing 154 and charge holder 174 and is able to deflect toward the charge holder when, and only when, impacted by projectile 162. Actuation plate 172 may have a projecting or convexly shaped portion 176 facing projectile 162 in order to reduce the distance the projectile has to travel to impact the plate.

In contrast to the combustion ignition assembly 170 described in the Parkinson et al. reference, the breech as described in the application and commonly understood by those of ordinary skill in the art refers to a specialized compartment or receptacle within which an

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Accordingly, applicants submit that the Parkinson et al. reference fails to teach or suggest a breech. Therefore, applicants respectfully request withdrawal of the rejection of Claims 1, 2, 16, 18, and 52.

The Rejection of Claims 3, 4, and 6 Under 35 U.S.C. § 103(a)

Claims 3, 4, and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Galbraith et al. or Parkinson et al. in view of Stewart et al. Applicants respectfully disagree.

Claims 3, 4, and 6 are dependent from Claim 1; therefore, since neither Galbraith et al. nor Parkinson et al. describe or remotely suggest the elements of Claim 1, Claims 3, 4, and 6 are patentable for at least this reason alone.

Furthermore, for a *prima facie* case of obviousness, there must first be a suggestion or motivation in the references or in the knowledge generally available to modify a reference or to combine references. There must be a reasonable expectation of success, and the references must describe every element found in the claims.

The Stewart et al. reference does not describe a gas generator breech connected to a tank, wherein a hermetically sealed gas generator cartridge is provided within the gas generator breech. Therefore, by virtue of this reason, there is no *prima facie* case of obviousness. Accordingly, even assuming the references are combined, the combination fails to teach all the claim elements.

Accordingly, Claims 3, 4, and 6 are patentable in view of Galbraith et al. or Parkinson et al., either alone or further in view of Stewart et al. Therefore, the withdrawal of the rejection of Claims 3, 4, and 6 is respectfully requested.

The Rejection of Claims 10-12, 14, 21, 22, 24, 25, 44, 45, 47, and 48 Under 35 U.S.C. § 103(a)

Claims 10-12, 14, 21, 22, 24, 25, 44, 45, 47, and 48 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Galbraith et al. or Parkinson et al. Applicants respectfully disagree.

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For a *prima facie* case of obviousness, there must first be a suggestion or motivation, either in the references, or in the knowledge generally available to modify a reference or to combine references. There must be a reasonable expectation of success, and all the elements of the claims must be found in the prior art references.

Claims 10-12, 14, 21, 22, 24, and 25 are dependent from Claim 1. Since neither Galbraith et al. or Parkinson et al. describes or remotely suggests Claim 1, namely, a breech and a hermetically sealed gas generator cartridge, these claims are patentable by virtue of this reason alone. Claim 44 also recites a breech and a hermetically sealed container. Claim 45 is dependent from Claim 44. Claim 47 recites a hermetically sealed container. Claim 48 is dependent from Claim 47. Therefore, as an initial matter all the claims rejected in this section recite one or more elements that have been shown not to be present in either Galbraith or Parkinson. Therefore, by virtue of this reason alone, these claims are patentable.

As to the other aspects of the claims, the Examiner states that "Galbraith or Parkinson discloses all the limitations of the claims except for gas generator container being made of steel, food can, or soda pop can." As discussed above this statement is erroneous. Galbraith and Parkinson do not disclose all the limitations of the claims. The Examiner further states:

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to provide the device of Galbraith or Parkinson with the gas generator housing being made of either steel, food can, or soda pop can, because applicant has not disclosed that steel, food can, or soda pop can container provides an advantage, is used for a particular purpose, or solves a stated problem.

Applicants disagree with the statements made by the Examiner. Applicants respectfully point out that the Examiner has initially not carried the burden of establishing a *prima facie* case

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of obviousness. First, neither Galbraith et al. or Parkinson et al. teaches or suggests a hermetically sealed gas generator cartridge, as discussed above. Second, the Examiner has not provided any reason for why the use of any one of these materials would have been obvious, nor has the Examiner provided any real evidence where the prior art teaches or suggests a hermetically sealed gas generator cartridge container made from steel, or a precursor to a food can or a precursor to a soda pop can. Additionally, the Examiner has not provided any good reason why a food can or a beverage can would work successfully in the prior art inventions.

Applicants point out that the gas generator of Galbraith et al. appears to be permanently attached to the device, and the gas generator of Parkinson et al. seems to have a highly specialized configuration. In either of these two prior art inventions, a precursor of a food or beverage can is certain to be an unsuitable substitute. However, where a breech is provided, a cartridge may be inserted in the breech. Accordingly, applicants' invention defined by the claims in this section would not typically require a permanently attached gas generator or a high specialized exterior configuration. Accordingly, a simple container construction would suffice. Applicants respectfully point out that applicants have provided distinct advantages to using a precursor of a food or a beverage can on page 3, lines 11-14. Therein, applicants state, "[t]he precursor container of a beverage or food can already comes in a thickness and material of construction that makes it a suitable, cost-effective container for use in the gas generator cartridge of the invention."

Accordingly, applicants respectfully request the withdrawal of the rejection of Claims 10-12, 14, 21, 22, 24, 25, 44, 45, 47, and 48.

The Rejection of Claim 46 Under 35 U.S.C. § 103(a)

Claim 46 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Parkinson et al. in view of Galbraith et al. Applicants respectfully disagree.

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